

REMARKS

Reconsideration and allowance are requested.

Original claims 2, 7 and 12 have been canceled and a feature of these claims included in the independent claims 1, 6, and 11.

The Examiner objects to the term “about” under 35 U.S.C. §112, second paragraph. In the context of the claims, “about” was used in the sense of “regarding” or “associated with” and not “approximately.” To assist the Examiner, the term “associated with” is used instead of “about.” Withdrawal of this objection is requested.

Claims 1, 2, 6, 7, 11, and 12 stand rejected for obviousness under 35 U.S.C. §103 based on Xu and Salmenkaita. This rejection is respectfully traversed.

The independent claims increase the performance of a CDMA cellular system without requiring any changes to standard specifications or requiring additional signaling in the radio network. CDMA systems usually maintain a list of “intracell” interferers to the mobile station (i.e., interferers belonging to the same cell as the mobile and thus having the same scrambling code). But as the mobile station approaches the cell boundary, intercell interferers (i.e., interferers from one or more other cells having other scrambling codes) become stronger. Conventional CDMA systems can not handle these interferers without changes to cellular communications standards and/or additional signaling. Neither change is desirable.

The inventors recognized that mobile terminals close to the cell boundaries are also close to performing a handover. In this case, these mobile terminals have already been instructed by the network to listen to the traffic in the neighboring cell(s), and as a result, have acquired handover information that is sufficient to identify intercell interferers that should be included in

an interference canceling joint detection (JD) algorithm in the mobile terminal. No standard change or additional signaling is necessary.

Xu describes a system in which one or several inactive or empty slots from the “own cell” are used to detect interference from other cells (paragraph [0016]). The first problem is that empty slots waste bandwidth. A second problem, and in contrast to what is claimed, is that using the empty slots to detect interference from other cells would require a standard change. Third, Xu also describes embodiments that use additional signaling to broadcast characteristics of interfering signals from the base station to the mobile stations (paragraph [0018]). The approach in the independent claims seeks to avoid all of these problems. In these ways, Xu actually teaches away from what is claimed. In fact, Xu rules out the possibility to include intercell interferers in the joint detection. See the second half of paragraph [0015]. And as the Examiner admits, Xu fails to teach the claimed interference cancellation.

For this latter deficiency, the Examiner turns to Salmenkaita. But Salmenkaita does not describe interference cancellation in a CDMA cellular system, as recited in the independent claims. Instead, Salmenkaita describes channel selection in a GSM system. See the beginning of paragraph [0025] and paragraph [0011]. The GSM system is a TDMA based system—not CDMA. Moreover, Salmenkaita simply describes using the results of interference cancellation (paragraph [0010]) and not actually performing interference cancellation. Thus, the proposed combination of Xu and Salmenkaita fails to teach all the features recited in the independent claims. For example, that combination (even assuming it could be made) fails to teach performing interference cancellation for all listed interferers to a mobile station, where those interferers to the mobile station are listed based on handover-related information determined by the mobile station.

The obviousness rejection is also improper because the combination of Xu and Salmenkaita is legally improper. An invention is obvious only "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains." 35 U.S.C. §103. Obviousness is a legal conclusion based on underlying findings of fact. *In re Dembiczkak*, 175 F.3d 994, 998 (Fed. Cir. 1999). The underlying factual inquiries are: "(1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness." *Id.* Determination of obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention. *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998). There must be some teaching, suggestion, or reason in the prior art to select particular elements, and to combine them as combined by the inventor. *Vulcan Engineering Co., Inc. v. Fata Aluminium, Inc.*, 278 F.3d 1366, 1372 (Fed. Cir. 2002). "The absence of such a suggestion to combine is dispositive in an obviousness determination." *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573, 1579 (Fed. Cir. 1997).

While a motivation to combine may be supplied by the knowledge and skill of those in the industry, such a motivation must be "clear and particular, and it must be supported by actual evidence." *Group One Ltd. v. Hallmark Cards, Inc.*, 407 F.3d 1297, 1304 (Fed. Cir. 2005) (quoting *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1334 (Fed. Cir. 2002)). Broad conclusory statements regarding the teaching of multiple references, standing alone, are not evidence. See *Dembiczkak*, 175 F.3d at 999 (Fed. Cir. 1999). But that is all the Examiner provides—a conclusory statement.

To prevent hindsight invalidation of patent claims, the law requires some "teaching, suggestion or reason" to combine cited references." *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351 (Fed. Cir. 2001). The mere fact that a prior art reference could be modified does not mean that it is obvious to modify the prior art reference. See, for example, *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004). "Stated another way, the prior art as a whole must 'suggest the desirability' of the combination." *Id.* Just because something is feasible does not make it desirable. The Federal Circuit mandates that "motivation to combine requires the latter [desirable]." *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 (Fed. Cir. 2000).

In addition, the Federal Circuit *requires* consideration of the problem confronted by the inventor in determining whether it would have been obvious to combine references in order to solve that problem. *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 935 (Fed. Cir. 1990). Indeed, the Examiner must show reasons why one of ordinary skill in the art, confronted with the same problem as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed. See *In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998).

Yet in the Examiner's proposed combination, there is no identification by the Examiner that Xu was working on solving the same problem as the inventors. To the contrary, Xu teaches away from the inventors were trying to accomplish: Xu requires a change in cellular communications standards and/or requires additional control signaling. Salmenkaita's teachings relate to a TDMA system in which the problems identified by the inventors for CDMA systems are not an issue. So a person of ordinary skill in the art working in a CDMA system with CDMA specific problems would not have been motivated to look to TDMA technology. The combination is legally improper.

The Examiner relies on tertiary references to Wong and Frank to reject dependent claims.

The Examiner improperly omits the Salmenkaita reference as part of the rejection because Salmenkaita was cited in the rejection of the independent claims upon which these dependent claims depend. In any event, neither Wong nor Frank remedies the deficiencies of Xu or Salmenkaita. For example, Wong describes methods for transmitting data from mobile stations to a base station without even using interference cancellation. See Abstract and paragraph [0013]. Frank describes a multi-step procedure for estimating received symbols. Only channels of the same cell are considered (one scrambling or de-spreading code). But claims 5, 10 and 15 refer to intercell interferers.

The application is in condition for allowance. An early notice to that effect is earnestly solicited.

Respectfully submitted,

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